Measuring Academic Growth

Background

The ELP Progress indicator model was used as the foundation for this model.

Growth Targets

Fall-to-spring growth targets are aligned to the 2020 NWEA MAP Growth Normative Data fall-to-spring growth norms highlighted for grades 3-8 and 10 in the tables below. NWEA publishes updated normative data approximately every four years.

Growth targets are grade-level and content specific.

2020 Reading Student Growth Norms						
	Fall-to-Winter		Winter-to-Spring		Fall-to-Spring	
Grade	Mean	SD	Mean	SD	Mean	SD
K	9.63	5.75	6.81	5.30	16.45	7.50
1	9.92	5.85	5.55	5.37	15.47	7.74
2	8.85	5.86	4.37	5.37	13.22	7.77
3	7.28	5.86	3.22	5.37	10.50	7.77
4	5.82	5.76	2.33	5.31	8.16	7.53
5	4.64	5.75	1.86	5.30	6.50	7.49
6	3.64	5.65	1.55	5.24	5.19	7.26
7	2.89	5.60	1.27	5.21	4.16	7.15
8	2.51	5.73	1.14	5.29	3.65	7.46
9	1.62	6.06	0.88	5.50	2.51	8.22
10	1.43	5.88	0.60	5.38	2.04	7.80
11	1.11	6.27	0.08	5.62	1.18	8.68
12	0.05	6.38	0.47	5.70	0.52	8.92

2020 Mathematics Student Growth Norms						
	Fall-to-Winter		Winter-to-Spring		Fall-to-Spring	
Grade	Mean	SD	Mean	SD	Mean	SD
K	10.57	5.15	6.97	4.77	17.54	6.63
1	10.13	5.22	6.22	4.82	16.35	6.81
2	9.03	5.11	5.35	4.75	14.38	6.54
3	7.75	4.99	4.85	4.68	12.60	6.26
4	6.50	4.98	4.46	4.67	10.96	6.24
5	5.56	5.10	4.05	4.75	9.61	6.53
6	4.81	5.04	3.32	4.71	8.13	6.38
7	3.83	4.96	2.69	4.66	6.52	6.18
8	3.20	5.27	2.18	4.85	5.38	6.93
9	2.24	5.48	1.36	4.98	3.60	7.41
10	2.14	5.46	1.21	4.97	3.35	7.37
11	1.77	5.92	0.76	5.25	2.52	8.37
12	0.30	6.09	0.88	5.36	1.18	8.75

Growth Index Scores

The second component is a system of awarding growth index scores to students who make progress towards their growth target. Students are awarded points based on the degree to which they meet their growth targets as follows:

Growth index scores range from 0.00 to 2.00 points.

Criterion	Students who did not make RIT score gains from fall-to-spring	Students whose growth equaled the expected growth	Students whose growth was twice or more the expected growth
Growth Index Score	0.00	1.00	2.00

Exact growth index scores for students ranging from 0.01-1.99 points are calculated accordingly:

student growth ÷ growth target

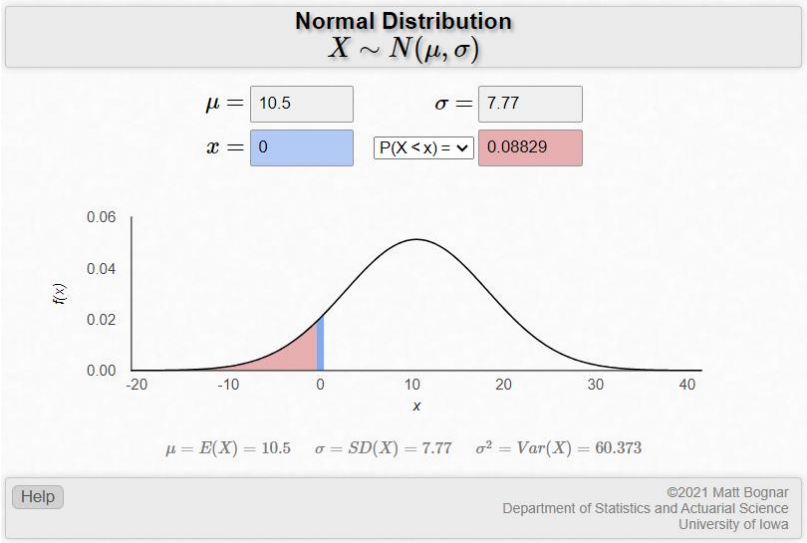
This system gives students credit for any amount of progress they make towards their fall-to-spring growth targets. Note that a student whose spring score is less than their fall score is not penalized with a negative score but rather is given zero credit. This decision was made to account for the effect of large standard deviations on the distribution of student scores, in particular at the upper grade levels. Student who exceed their annual growth targets may earn a maximum of 200% credit, or 2.00 points.

Reasoning for a Maximum Limit of 2.00 Points

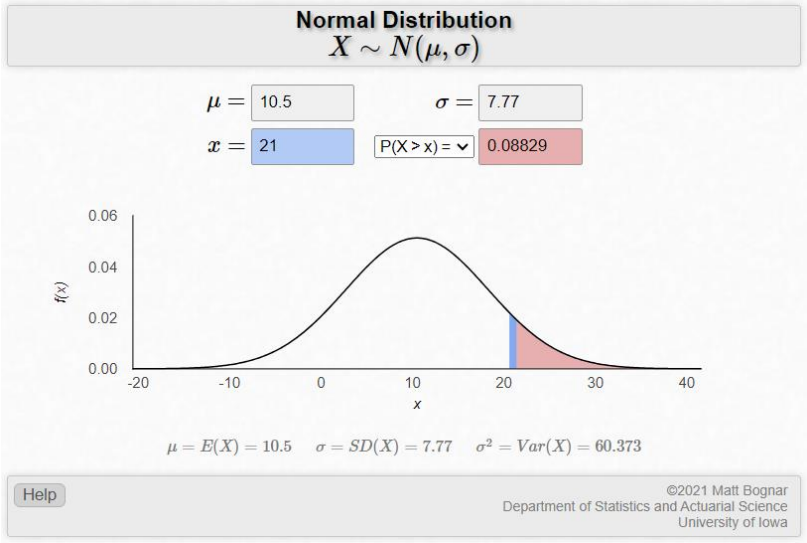
Setting a maximum limit of 2.00 points for student who attain twice or more the expected growth points, allows for a balancing of score points with those students who did not make RIT score gains.

As shown in the Growth Norms tables, means and standard deviations vary widely from grade level to grade level, with grades 3 and 10 having the most extreme values. A consistent method of calculating the growth index score is needed which can apply to all grade levels and both content areas.

Example for Grade 3 Reading

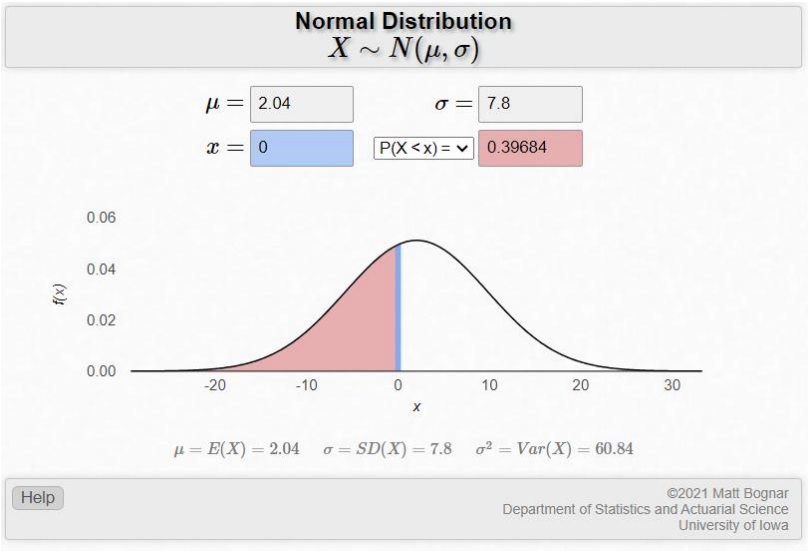


According to NWEA national norms, 8.83% of third-grade students will have a growth measure of 0 or fewer RIT score points.

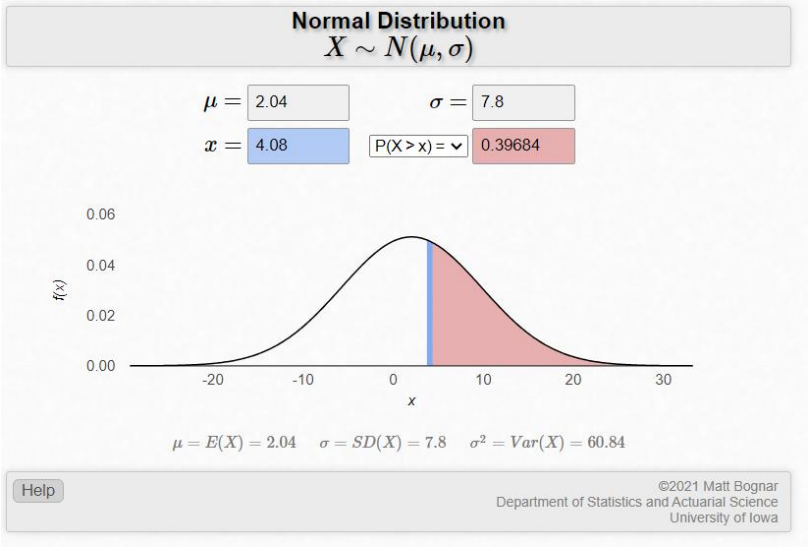


According to NWEA national norms, 8.83% of third-grade students will have a growth measure of 21 or more RIT score points, which corresponds to twice or more of the expected growth (10.5 points).

Example for Grade 10 Reading



According to NWEA national norms, 39.68% of tenth-grade students will have a growth measure of 0 or fewer RIT score points.



According to NWEA national norms, 39.68% of tenth-grade students will have a growth measure of 4.08 or more RIT score points, which corresponds to twice or more of the expected growth (2.04 points).

Measuring Academic Growth for Student Groups

A student group's score for Academic Growth in the accountability system is calculated by aggregating the growth index scores of all students who took the NWEA assessments (MAP Growth in fall 2022 and Maine Through Year in spring 2023) in the current year and dividing by the total number of students. That is, the formula for computing a student group Academic Growth indicator is:

Student Group Academic Growth =
(Sum of student growth index scores for all students) ÷ (Total number of students)

For example, suppose a student group has 16 students who took the NWEA assessments in fall 2022 and spring 2023. The table below shows the growth index scores each student has attained based on Maine's academic growth model.

Student	1	2	3	4	5	6	7	8
Student Growth Index Score	0	0.01	0.34	0.67	0.82	0.95	1.00	1.00

Student	9	10	11	12	13	14	15	16
Student Growth Index Score	1.02	1.05	1.08	1.15	1.17	1.20	1.79	2.00

The academic growth indicator score for this student group is computed by summing up the growth index scores for all students (i.e., 15.25), dividing by the total number of students (i.e., 16) to come up with the average percentage of growth towards the target. In this case it would be 95.3%.

Because student growth index scores are standardized on a 0.00-2.00 scale, aggregated student growth can be calculated with students across varying grade levels even though the growth mean and standard deviation for each of those grade levels are different.